DOCUMENT RESUME

ED 459 544 EC 308 702

AUTHOR	Fuchs, Douglas; Fuchs, Lynn S.; Mathes, Patricia G.; Lipsey, Mark W.; Roberts, P. Holley
TITLE	Is "Learning Disabilities" Just a Fancy Term for Low Achievement? A Meta-Analysis of Reading Differences between Low Achievers with and without the Label. Executive Summary.
SPONS AGENCY	Special Education Programs (ED/OSERS), Washington, DC.
PUB DATE	2001-08-00
NOTE	8p.; Paper presented at the Learning Disabilities Summit: Building a Foundation for the Future (Washington, DC, August 27-28, 2001).
AVAILABLE FROM	For full text: http://www.air.org/ldsummit/.
PUB TYPE	Reports - Research (143) -- Speeches/Meeting Papers (150)
EDRS PRICE	MF01/PC01 Plus Postage.
DESCRIPTORS	Academic Achievement; *Classification; *Disability Identification; Elementary Secondary Education; Eligibility; High Risk Students; Intervention; *Labeling (of Persons); *Learning Disabilities; *Reading Difficulties; Referral; Special Education; *Student Characteristics

ABSTRACT

This paper reports the results of a study that investigated the reading differences between students who were low achieving, both with and without the label of learning disabilities (LD). Seventy-nine studies were chosen to calculate reading performance differences between low achievers with and without the LD label. The substantive and methodological features of the 79 studies were coded to identify potential sources of effect size variance. Preliminary statistical analyses were then conducted to determine which reading domains and types of research designs provided a defensible data set for meta-analytic aggregation. Then averages were taken across comparable reading domains. An overall weighted mean effect size was calculated of .605 standard deviations, indicating that the reading scores of 73 percent of low achievers without the label were above the average reading score of low achievers with the label. However, substantial heterogeneity in the sample of effect sizes were also observed. Further analyses identified 10 variables that helped explain this variation. Three of these in particular (timed tests, higher grade levels, and objective measurement) increased the disparity in reading performance between low achievers with and without the label. It is argued that low achievement should be used as the primary criterion to identify LD. (CR)

Reproductions supplied by EDRS are the best that can be made
from the original document.

ED 459 544

IS "LEARNING DISABILITIES" JUST A FANCY TERM FOR LOW ACHIEVEMENT?: A META-ANALYSIS OF READING DIFFERENCES BETWEEN LOW ACHIEVERS WITH AND WITHOUT THE LABEL

Authors

Douglas Fuchs, Peabody College of Vanderbilt University
Lynn S. Fuchs, Peabody College of Vanderbilt University
Patricia G. Mathes, University of Texas Health Science Center at Houston
Mark W. Lipsey, Peabody College of Vanderbilt University
P. Holley Roberts, Peabody College of Vanderbilt University

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☑ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

EXECUTIVE SUMMARY

Introduction

Seventy-nine studies were chosen that allowed us to calculate reading performance differences between low achievers with and without an LD label. The substantive and methodological features of the 79 studies were coded to identify potential sources of effect size (ES) variance. We then conducted preliminary statistical analyses to determine which reading domains and types of research designs provided a defensible data set for meta-analytic aggregation. Then averages were taken across comparable reading domains. An overall weighted mean ES was calculated of .605 standard deviations, indicating that the reading scores of 73% of low achievers without the label were above the average reading score of low achievers with the label. However, we also observed substantial heterogeneity in the sample of ESs. Our further analyses identified 10 variables that helped explain this variation. Three of these in particular—timed tests, higher grade levels, and objective measurement—increased the disparity in reading performance between low achievers with and without the label. We did not conduct this meta-analysis to answer all questions about LD facing teachers, administrators, parents, policymakers, scholars, and others. It should,

EC 308702

BEST COPY AVAILABLE

however, provide the most comprehensive answer to date to the question, Is LD just a fancy term for low achievement?

Findings

At least three lines of research in the 1980s addressed the LD construct. These documented variations of LD definitions and operationalization across states demonstrated that many teachers disregarded definitions to ensure special education for their students. This research reported considerable overlap in performance between low achievers with and without the LD label and between students with LD and Title I students. These three areas of research promoted a widely held view that an LD designation was essentially arbitrary. The NICHD group used reading disabilities—the most prevalent form of LD—as a proxy for the LD construct, and the group concluded that no evidence shows that low-IQ and high-IQ poor readers respond differently to treatment. The key to more effective instruction, says the NICHD group, is early identification and prevention.

If a comprehensive review of the empirical evidence shows that students with the LD label cannot be distinguished from their low-achieving (LA), non-labeled classmates, then it would seem only reasonable to support the abolition of this disability category. However, before talking seriously about abolishing this right for children in the LD category, we believe that it is necessary to determine empirically whether LD can reliably be differentiated from "garden variety" low achievement. Integrating relevant research can aid decision makers at all levels determine what course to follow. Toward this end, we identified and quantitatively synthesized the extant literature in the domain of reading. We chose the reading domain for three reasons: a majority of studies comparing low-achieving students with and without the LD label focus on reading; most children with LD are identified because of chronic reading problems; and reading difficulty affects overall school achievement.

Our objective was to integrate all published and unpublished studies presenting information on the reading achievement of both LD and LA non-disabled students. We conducted an exhaustive search and comprehensive review of the education research literature. Each source was screened for methodology, completeness of information, and study of both LD and LA groups. The two principal investigators and the project coordinator evaluated the 86 studies meeting the inclusion criteria for substantive and methodological features and for effect sizes to help explain performance differences between LD and LA students. A coding protocol was developed through a two-phase process. Effect sizes were computed for the studies to determine the magnitude and direction of LD-LA differences on a range of reading measures as the standardized mean difference effect size (d index).

Three preliminary analyses were conducted to determine which data, in what form, should be incorporated into the major analyses: study designs, the reading domains, and outliers. The studies showed considerable disagreement with one another with respect to the magnitude of the differences between LD and LA groups in reading performance. This finding led us to explore which study characteristics might be associated with variation in ES. Our analyses indicated that variations in LD and LA definitions might be important in explaining ES variation. We revised our coding schemes to reflect these findings. From our data, we can determine which LD-LA definitions are largely responsible for variation in ES. When the adjusted and unadjusted ESs agree, other study characteristics were not a major influence in determining ES variation. In contrast, when adjusted and unadjusted ESs do not agree, other study characteristics were important in determining ES variation.

Several focused factor analyses were conducted on sets of variables that seemed to be related conceptually. The purpose of these analyses was to determine whether some sets of related variables might be represented better as multivariate composites. The first of these factor analyses focused on a set of LD-LA student demographic ("comparability") variables. The second factor analysis examined relations among variables describing the research methods used for constructing the LD-LA samples.

To examine relations between the clustered study characteristics and variation in ESs, we used weighted least-squares regression, weighting each ES by the inverse of its variance. Our pool of predictor variables included the LD-LA definitional pairings, the five factor scores, the three locale variables, technical adequacy, test format, study quality, and date of study. Predictors were entered simultaneously, then the weakest was dropped and the model was refit. We repeated this process until all the remaining variables were significant. The exception was the set of dummy-coded variables representing LD-LA pairings. The four primary pairings were entered and left in the analysis as a set. The fifth pairing variable (i.e., "other LD/data driven LA") was left out as the contrast variable.

Across studies, and across the many substantive and methodological variables associated with those studies, the mean weighted ES describing the difference between LD and LA children's reading performance was .6 of a standard deviation. This difference indicates that the reading scores of 73% of the LA population fall above the average reading score of the LD population. In other words, LD students on average perform considerably worse than LA students across various measures of reading performance.

Readers reviewing this finding and other results should note two study limitations. First, only ESs associated with "descriptive, one-point-in-time" research designs were included in our analyses. Also, ESs related to "phonological awareness," "rapid automatized naming," and "reading readiness" were excluded from analyses to provide a coherent, conservative, and statistically defensible analysis of LD-LA differences in reading. Second, the set of independent ESs on which the overall estimate of LD-LA differences was based demonstrated considerable heterogeneity. At the same time, however, the analyses identified a large (and statistically significant) proportion of the variance among the ESs. We identified 10 variables that operated independently of one another to explain the variation. Because

these variables maximized the degree of reading impairment associated with the LD label, they provide insight into the theoretical nature of the disability.

The variable explaining one of the largest sources of ES variance was test format. Specifically, ESs associated with timed tests were larger than those associated with untimed tests. The beta associated with this effect was .34. The strong effect associated with timed measurement formats carries theoretical as well as practical implications. Specifically, failure at achieving automaticity may represent an important characteristic of students with LD, warranting additional study. Methods of identifying such children might incorporate timed reading assessments to focus deliberately on students' failure to achieve automatic word-reading performance.

LD students' grade level was also associated positively with ESs. Although findings for test format and grade level can be related conceptually, these two variables exerted their effects independently of each other. Therefore, it is even more noteworthy that students with LD became more discrepant from their LA peers as grade level increased.

A plausible explanation for increasingly divergent performance in the higher grades is that children who experience early and persistent failure in acquiring word-reading competence are less likely to read in and out of school. Therefore, these children are more likely to suffer accumulating deficiencies in vocabulary, background information, and text-structure awareness— forms of knowledge associated with skilled reading comprehension—Stanovich's "The Matthew Effect." The finding that with increasing age, students with LD become more distinguishable from their LA counterparts provides corroborating evidence of the deleterious effects of early reading failure and argues for the importance of early identification and intervention.

Findings highlight a cluster of variables that independently suggest the value of objective measurement in identifying students with LD. For example, LD-LA differences in reading performance became greater when LA students had been referred for special education services, but had been found

ineligible on the basis of test data. This suggests that objective testing eliminated from special education those LA students with higher reading achievement, which in turn contributed to larger performance differences between them and their LD counterparts. Also, ESs were larger when students with LD had been selected for study participation on the basis of measured discrepancies, but LA students had been identified on the basis of teacher recommendations, suggesting that students with LD demonstrated low-reading achievement, whereas LA students read better than teachers informally had judged. The reverse was also true: ESs were smaller when LD students had been selected on the basis of multidisciplinary team judgment but LA students had been identified for participation on the basis of actual student performance data. Three empirically independent, but conceptually similar findings indicated that LD and LA students' reading performances differed more dramatically when test scores, rather than human judgment, provided the basis for selection. On the one hand, this finding provides a basis for questioning human judgment in the identification process. On the other hand, it suggests that other considerations, such as a focus on social behavior, may play a viable role in the identification of children whose overall performance profiles warrant special treatment.

Conclusion

How students are identified as LD represents an important practical problem and a major methodological challenge for practitioners and researchers, respectively. Additional methodological variables contributing to ES variation were uncovered. Several variables illustrate how the differences between LD and LA students increase or decrease with the demographic comparability of those samples. Also, a modest effect, independent of all others, suggested the possibility that ESs were larger in studies with lower methodological quality.

Analytical findings of differences seem to represent indirect support for "specific" learning disabilities. More direct evidence comes from recent studies that attempt to link brain abnormalities and reading difficulties by using positron emission tomography and magnetic resonance imaging. We join

Kavale and Forness (1998) and others in the view that future research is likely to discover unique neurocognitive differences for students with the LD label. At present, however, it is difficult to argue persuasively that these students have a qualitatively different set of learner characteristics requiring a unique educational response. We are tempted to conclude that the conservative and correct characterization of the .6 standard deviation difference between the LD and LA groups is simply a matter of degree, not kind. Yet at some point, does not low achievement become so extreme that it represents a real disorder, requiring a different educational response?

Given that LD students' reading achievement is worse than that of LA students, and assuming that many LD students' instructional needs can be addressed only by special education, why not simply use very low achievement as the primary criterion to identify LD and dispense with technically inadequate discrepancy formulas and controversial and divisive IQ tests? On the basis of the large effects revealed by this meta-analysis, we would expect many to agree that LD students, especially those in the higher grades and those identified by objective or timed assessments, display qualitatively different reading behavior and instructional needs than their LA counterparts. Whether LD qualifies as a distinct diagnostic entity or occurs in varying degrees of severity, as hypertension and obesity do, findings indicate that researchers and practitioners tend to identify children with more severe reading problems as LD. Given this, it seems reasonable that special education, with its capacity to provide intensive reading instruction, be directed at this group of children.